

CHARGE NUMBER: 2100  
PROJECT TITLE: SMOKE FILTRATION  
PERIOD COVERED: APRIL 1 - APRIL 30, 1973  
PROJECT LEADER: P. N. GAUVIN  
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I. NEW CIGARET DEVELOPMENT

A. 14 mg Full Flavor Cigaret

Final results from the POL mailout of the higher tar/puff Project Premium vs. the standard Project Premium confirm last month's report of the results with 46% in. There was no difference in preference from the total panel, but the modified Project Premium was more acceptable to younger smokers, females, and light smokers ( $<.05$ ), while the standard Premium was preferred ( $<.05$ ) by older males (40+).<sup>1</sup>

This cigaret product will now be added to the shelf items notebook.

B. Modified Marlboro Lights

Final HTI results on the Hauni-diluted Marlboro Lights with HB blend vs. a Hauni-diluted control were recently received.

The Hauni-diluted Marlboro Lights with HB blend was about equally preferred with the Hauni-diluted Marlboro Lights control by full flavor and charcoal smokers, and significantly (at the 95% level) less preferred by hi-fi smokers. To hi-fi smokers, the Hauni-diluted Marlboro Lights control was desirably "milder", "cooler smoking", and generally "better tasting", while to full flavor and charcoal smokers, the HB blend was desirably "stronger" and "more flavorful."<sup>2</sup>

C. Parliament 85/80 Filter Modification

The decision has been made to test the lengthened filter Parliament as a total cigaret concept incorporating both a filter and blend modification. The lengthened filter on the Parliament CFF blend with compensation will be HTI tested against the current production Parliament in both the 85 and 80 configurations.

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#### D. 85 mm Slim Cigaret Development

This 85 mm Slim prototype similar in tar delivery and puff count to a Marlboro type control was shown to be comparable to the higher circumference control in taste level, total response, harshness, etc.<sup>3</sup> Richmond Placement Panel testing has been initiated.

#### E. Improved Multifilter

POL results showed no significant differences in cigarettes with reduced carbon and dilution levels. However, descriptive testing found differences that were not in the expected direction. It is suspected that the highly flavored Multifilter blend could be responsible. Work will continue in coordination with the Flavor Group.<sup>4</sup>

#### F. Exposed Plastic 100

The foamed plastic roughness has been reduced in order to facilitate the ring-tipping operation. We should now be able to obtain sufficient cigarettes for mailout testing. In the meantime, handmade samples have been submitted to establish tar delivery levels.<sup>5</sup>

### II. CIGARET COMPONENT DEVELOPMENT

#### A. Porous Tipping

Dilution uniformity studies on cigarettes made with the porous tipping indicate that, at equivalent dilution levels, the porous tipping is less uniform in dilution than perforations but more uniform than Hauni pins.

Subjective evaluations continue on a Marlboro Lights type with white porous tipping.<sup>6</sup>

Pre-mailout cigarettes utilizing the cork porous tipping are under construction.

#### B. Dual Porosity Cigaret Paper

Internal subjective evaluations on a cigarette product using the dual porosity cigarette paper to achieve a C.P. type TPM profile are now complete. Results showed the experimental to be hot, harsh, bitter, etc., and to have a definite off-taste. The off-taste is probably due to the porosity reducing material used in the cigarette paper.<sup>7</sup>

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After the patent application is complete, no further work is planned.

#### C. Baumgartner CAF (Paper) Filter

This paper filter material from Baumgartner is similar in RTD, weight, and efficiency to the Ecusta High Bulk paper. However, taste evaluations indicate the Baumgartner paper to be significantly less acceptable than the High Bulk.<sup>8</sup>

A final report will be forthcoming.

#### D. Sphero-Pore A (Open-Pore Polyurethane Filter)

Further investigation of the processing of Sphero-Pore A (SP-A) indicates that toluene extraction and deactivation of residual isocyanate can be accomplished by heat treating the polyurethane in a forced draft oven for 30-60 minutes at 140-150°C. No residual toluene or isocyanate were detected (sensitivities 3 ppm and 1 ppm, respectively). It appears that in the individually molded 4-up filter system, washing with water under pressure is only necessary as a means of demolding the filter rods.

At the suggestion of Monsanto, a technique was explored for producing a granular SP-A material. The granules were produced in the lab by stirring the reaction mixture through the gelation cycle, followed by grinding of the resulting mass. Evaluation of this material in P-S-P cigarettes gave <50% TPM efficiency.<sup>10</sup> Granular SP-A made by the above technique is expected from Monsanto for evaluation.

Laboratory equipment for molding 4-up filters, processing SP-A rods from sheets, and extruding SP-A rods has been requisitioned.

#### E. Flavor Transfer Via Dry Flavor Particles

Following a reassessment of priorities, the concept of flavor transfer with flavor particles in the filter will now be directed towards adding distinctive flavors and subtle tobacco-like flavors to low delivery cigarettes (10-12 mg tar). A dual CA system with dilution and the particles on the inner section was selected as the low delivery filter system. Initial analytical and subjective evaluations have been initiated and should be completed in June.

2022158765

Various liquid tobacco-like flavor formulations for low delivery cigarettes will be screened by the Flavor Group. The possibility of spray drying the components of the more acceptable formulations on a starch base will then be investigated. Significant progress in evaluating these tobacco-like flavor particles should be realized in the 3rd quarter of 1973.<sup>11</sup>

#### REFERENCES

- 1 - POL Report #73-065.
- 2 - HTI Report #5005/1208.
- 3 - Notebook 6298, p. 6.  
Memo, Crayton to Houck, 5/3/73.
- 4 - Notebook 6167, p. 77.  
Notebook 6297, pp. 1-2.  
POL Booth Test Data 4/13 & 4/19/73.
- 5 - Notebook 6169, p. 97.
- 6 - Notebook 6298, p. 5.
- 7 - Notebook 6038, p. 89.  
POL Booth Test Data 2/23/73.  
Memo, Kounnas to Houck, 5/10/73.
- 8 - Notebook 6167, p. 64.  
Notebook 6038, p. 98.  
POL Booth Test Data 4/11/73.
- 9 - Notebook 6130, p. 58.  
Notebook 6137, pp. 58-60.
- 10 - Notebook 6311, p. 2.
- 11 - Memo P. N. Gauvin to J. S. Osmalov, "Current Status of Flavor Transfer From Dry Flavor Particles," April 25, 1973.

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